

Amendments to the Drawings:

The attached replacement drawing sheet makes changes to Fig. 2 and replaces the original sheet with Fig. 2.

Attachment: Replacement Sheet

REMARKS

Claims 1 and 7-10 are pending. By this Amendment, claims 1 and 7-10 are amended and claims 2-6 are canceled. Fig. 2 has also been amended to remove reference numeral 35' and to change reference numeral 18 to reference numeral 18a.

The drawings were objected to under 37 C.F.R. §1.84(p)(5). By this Amendment, Fig. 2 has been amended responsive to the objection. It is respectfully requested that the objection be withdrawn.

Claims 2-10 were objected to based on various informalities. By this Amendment, claim 2 has been canceled and claims 8-10 have been amended responsive to the objection. It is respectfully requested that the objection be withdrawn.

Claims 1-4 and 8 were rejected under 35 U.S.C. §102(b) over Kishida et al. (Kishida), U.S. Patent No. 6,315,468, and claims 5, 6 and 10 were rejected under 35 U.S.C. §103(a) over Kishida in view of Lee et al. (Lee), U.S. Patent No. 6,629,787. The rejections are respectfully traversed.

Kishida and Lee fail to disclose or suggest an ink-jet recording apparatus with a guide shift mechanism that includes a slidable torquer having a rack directly engaged with the gears and imparting a torque to the gears to rotate the gears, as recited in claim 1 and as similarly recited in claim 10.

Kishida fails to disclose all of the features recited in claims 1 and 10 because the airfoil sector gear 43 (identified on page 4 of the Office Action as corresponding to the torquer) does not impart a torque to gears (i.e., two or more gears) in order to rotate the gears. In fact, the airfoil sector gear 43 only imparts a torque to one gear. The airfoil sector gear 43 of Kishida also does not slide but rather rotates.

Fig. 5 of Kishida discloses two guide rods 2A and 2B that support a carriage 1 (col. 6, lines 36-38). A small fan-shaped gear 44 is fixed to an eccentric pin 31 of the left-hand guide

rod 2A, and a small fan-shaped gear 42 and a sector gear 41 are fixed to an eccentric pin 32 of the right-hand guide rod 2B. Disposed between the two guide rods 2A and 2B is an airfoil sector gear 43 that is engaged with the small fan-shaped gears 42 and 44.

In order to shift the guide rods 2A and 2B, a switch lever 35 is displaced to bring one of the planet gears 37 and 38 into engagement with an intermediate gear 39 so that rotation of a roller shaft 34 is transmitted to the intermediate gear 39 via the planet gear 37 or 38. Rotation of the intermediate gear 39 is then transmitted to the sector gear 41 via a deformed Geneva gear portion 40 with which the sector gear 41 is engaged. The sector gear 41 and the small fan-shaped gear 42, together with the eccentric pin 32, are rotated to thereby shift the guide rod 2B. The rotation of the small fan-shaped gear 42 is transmitted to the small fan-shaped gear 44 via the airfoil sector gear 43 that is engaged with the small fan-shaped gear 42. The small fan-shaped gear 44, together with the eccentric pin 31, is rotated to thereby shift the guide rod 2A (col. 6, line 56 to col. 7, line 28).

Kishida thus fails to disclose all of the features recited in claims 1 and 10 because the small fan-shaped gear 42 imparts a torque to the airfoil sector gear 43 (i.e., alleged torquer) and the airfoil sector gear 43 only imparts a torque to one gear, the fan-shaped gear 44, and not gears (each gear supporting one of the guide rods). In other words, the airfoil sector gear 43 does not impart a torque to the small fan-shaped gear 42.

The airfoil sector gear 43 is also not a slidable torquer because the airfoil sector gear 43 rotates. By providing a slidable torquer with a rack directly engaged with gears, the structure created by the combination of features in claims 1 and 10 is simplified compared to the structure of Kishida which uses a plurality of gears to transmit a rotation. Accordingly, Kishida fails to disclose or suggest all of the features recited in claims 1 and 10.

Lee fails to overcome the deficiencies of Kishida because Lee only discloses a single pinion gear 146 and a rack gear 145 engaged with the single pinion gear 146. In Lee, a

carriage (i.e., head assembly 130) is supported by a single shaft 120 (see FIG. 6), which is different from claims 1 and 10 which recites a plurality of guide rods for supporting a carriage. As shown in FIG. 8 of Lee, the shaft 120 is connected to a shaft turning means 140 via a shaft body 123 provided at one end of the shaft 120. In association with a movement of a movable member 143, the shaft turning means 140 is rotated so that the shaft body 123 is displaced to shift the shaft 120. The movable member 143 has the rack gear 145 engaged with the single pinion gear 146, and thereby is movable in association with a rotation of the pinion gear 146.

Accordingly, Lee fails to overcome the deficiencies of Kishida because Lee only discloses a single pinion gear 146 and a rack gear 144 engaged with the single pinion gear 146.

In view of the foregoing, Kishida and Lee fail to disclose or suggest all of the features recited in claims 1 and 10 as well as the additional features recited in the dependent claims thereof. It is respectfully requested that the rejections be withdrawn.


Claim 7 was rejected under 35 U.S.C. §103(a) over Kishida in view of Lee and Ayata et al. (Ayata), U.S. Patent No. 4,463,359 and claim 9 was rejected under 35 U.S.C. §103(a) over Kishida in view of JP-07032680 (JP'680). The rejections are respectfully traversed.

Ayata and JP'680 fail to overcome the deficiencies of Kishida and Lee in disclosing or suggesting the slidable torquer of claim 1. In view of the foregoing, none of the applied references disclose or suggest all of the features recited in claim 1 as well as the additional features recited in the dependent claims thereof. It is respectfully requested that the rejections be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1 and 7-10 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

Scott M. Schulte
Registration No. 44,325

JAO:SMS/tea

Attachments:

Petition for Extension of Time
Replacement Drawing Sheet

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OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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